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(54) Title: PROXIMITY-AIDED SYNTHESIS OF TEMPLATED MOLECULES

(57) Abstract: Disclosed is a method for synthesising a bifunctional complex. The complex comprises a template as well as a molecule, the synthesis of which being directed by the template. The synthesis of the complex requires initially a) a template comprising two or more codons in sequence, a first pair of a molecular affinity pair, and a reactive group; and b) two or more building blocks, each building block comprises i) an anti-codon capable of recognising a codon of the template, ii) a functional entity comprising at least one reactive group, and iii) a linker connecting the anti-codon and the functional entity, wherein building blocks having anti-codons intended to interact with codons of the template distal to the reactive group comprise as a section of the linker a second part of the molecular affinity pair. The synthesis proceeds by c) contacting the template with a building block under conditions which allow specific hybridisation of the anti-codon of the building block to the codon of the template, and under conditions ensuring assembling of the parts of the molecule pair, if present; d) obtaining a connection between the functional entity of the building block and the template by a reaction involving the template reactive group and the functional entity reactive group, e) cleaving a linkage to obtaining a nascent templated molecule, f) separating the parts of the molecular affinity pair, and g) repeating, for a building block having an anti-codon capable of hybridising to a new codon, steps c) to f) one or more times. The complexes obtainable according to the invention may be used in the generation of a library which may be enriched with regard to preferred complexes using molecular evolution techniques.

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